

# **Navajo Abandoned Uranium Mine**

## **Site Screen Report**

*This form is for use at the site of abandoned uranium mines (AUM) located on Navajo Nation lands. Applicable sites include all mine and mine features that have or have not undergone reclamation by the Navajo Abandoned Mine Lands Reclamation Program, including features, adits, pits and waste piles. Applicable sites also include all AUM sites listed in the USEPA CERCLIS database, all sites listed in the 2008 AUM GIS Report issued by USACOE and USEPA, all AUM sites on allotment lands associated with the Navajo Nation, and any and all AUM sites not listed in any database located on Navajo lands. Reconnaissance of any sites located on lands adjacent to Navajo lands that may be impacting Navajo lands will need to be coordinated with the authorities appropriate to those lands.*

*The purpose of the form is to ascertain the status and location of the identified AUM site, and record all immediate site information associated with the mine site. Decisions and recommendations on what additional steps are needed will be provided on a separate document.*

**Mine Name: Arrowhead No. 2**  
**Mine ID: 83**

**Navajo AUM Central Region**

**Prepared by:**

**Weston Solutions, Inc.**

**Contract: W91238-06-F-0083**

**20074.063.017.0020**

**August 2011**

**Part I Site Identification, Location and Status****Site Names and ID numbers as applicable****Mine ID:** 83**Map ID:** C28**CERCLIS:** NNN000909184**Navajo Abandoned Mine Land Reclamation Program:** NA-0707**Local name / Aliases:** Arrowhead No. 1; Arrowhead**Chapter and local area:** Tselani**County:** Apache **State:** Arizona**Lat/Long:** 36.2140571533 N / -109.844200447 W**Nearby road and highway:** Route 29 **Local Post Office:** Blue Gap, AZ**Surface Land Status: check one or more and provide ownership and contact information below**

**Tribal Trust Land** ☒  
**Private** ☐  
**Bureau of Land Mgmt** ☐  
**State** ☐

**Public lands** ☐  
**Tribal Fee Land** ☐  
**Allotment** ☐  
**Fee land** ☐

**Subsurface Mineral Rights:**

No information on subsurface mineral rights ownership was found in the EPA/AUM Database.

**Claim and operator information:**

The mine surface land status is classified as Tribal Trust Land. Historical documents identified the operator of the mine as Magor Mining Company in 1955. No additional historical ownership / lease information was identified in the EPA / AUM database.

**Number of residential structures within 200 feet of mine:** None

## Part II Summary of Radiological Readings

**Mine ID: 83**

**Highest gamma radiation measurement:** 112,683 counts per minute (cpm)

**Background Average:** 13,878 cpm

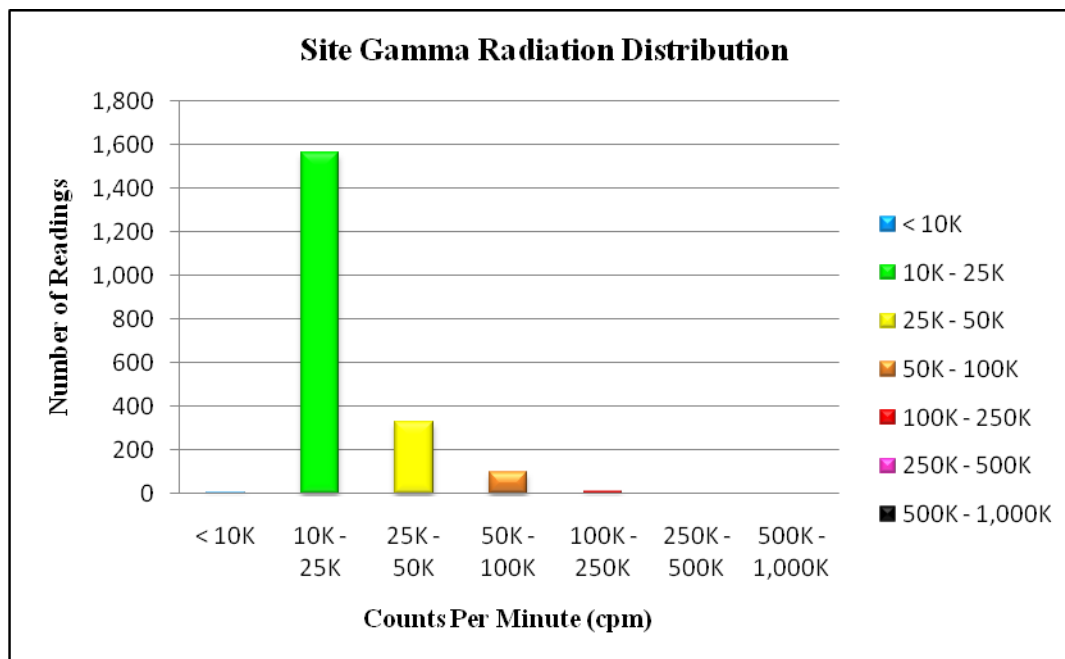
**Two Times Background:** 27,756 cpm

**Describe any other radiological measurements:**

A total of 2,003 gamma radiation measurements were collected from the mine site, ranging from 9,257 cpm to 112,683 cpm. The measurements are represented in Figures 1 and 2.

### Distribution Chart and Statistics:

Site Gamma Radiation Statistics	
Number of Readings	2,003
Minimum (cpm)	9,257
Maximum (cpm)	112,683
Mean (cpm)	22,723
Median (cpm)	18,891
Standard Deviation	14,868



### **Part III      Status of Reclamation and Mine Waste**

**Mine ID: 83**

**The following information was obtained from the Navajo Abandoned Mine Land Reclamation Program (NAMLRP) Point Features Database:**

**NAMLRP Status of the mine site: Reclaimed: Yes**

**Waste Pile onsite: No**

**NAMLRP Project Number: NA-0707**

**NAMLRP Mine features: 1 Portal**

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**The following information was obtained from field observations collected during the 2011 site screening:**

**Provide description and status of all mine sites and features at site. Include all waste piles, adits, pits and other features, and indicate whether they are open, closed, covered, capped, buried or unreclaimed. Indicate approximate size, shape and extent, including description of any reclamation caps. Note condition of all caps.**

**Observed reclamation work and status:**

**Adits:**

None observed

**Waste Piles:**

None observed

**Pits:**

None observed

**Shafts:**

None observed

**Other Debris and Mine Features:**

Mining debris (metal pipe driven into ground below mine); test/borehole in loose rock below mine; subsidence in ground that may be a borehole

**Part IV Site Observations and Environs****Observed Residential Structures (number and human habitation status of structures at the following distances from mine):**

**0 to 200 feet:** None observed

**200 feet to 0.25 mile:** None observed

**Observed Public or Commercial Structures (schools, clinics, Chapter Houses, places of business and any other structures used by members of the community at the following distances from the mine site):**

**0 to 200 feet:** None observed

**200 feet to 0.25 mile:** None observed

**Levels measured around the perimeter(s) of the identified structure(s):**

None

**Observed Water Sources (number and type of wells and surface water sources that are potentially used for human consumption at the following distances from the mine site):**

**0 to 0.25 miles:** None observed

**0.25 miles to 4 miles:** Residential pond approximately 3.5 mi NW of site

**Sensitive Environments (all sensitive environments located within visible range of the mine site, including: wetlands, endangered species, habitats and approximate locations of sites that may be under protection of the government of the Navajo Nation):**

None observed

**Known Site History (information from interviews with Chapter officials and residents and database review, includes: mine ownership, type of mining operation, period of operation, known amount of production, and any other information provided):**

The Arrowhead No. 2 mine claim consists of an area of 4,711.59 m<sup>2</sup>. The mine was identified as being operational in 1955. While operational, the mine had a total reported production volume of 6 tons. The mine surface land status is classified as Tribal Trust Land. Historical documents identified the operator of the mine as Magor Mining Company in 1955. No additional historical ownership / lease information was identified in the EPA / AUM database.

## **Part V          Response Action Summary**

### **Summary of Evaluation Factors:**

#### ***Accessibility:***

**Was the mine easily accessible to potential human activity?**

Yes

#### ***Radiological Measurements:***

**Were any gamma radiation measurements collected at the mine greater than two times the site-specific background levels?**

Yes

#### ***Waste Piles:***

**Were any unreclaimed waste piles observed at the mine with gamma radiation measurements greater than two times the site-specific background levels?**

No

#### ***Structures:***

**Were any structures observed within 200 feet of the mine?**

No

#### ***Potential Drinking Water Sources:***

**Were any potential drinking water sources observed within 4 miles of the mine?**

Yes

#### ***Reclamation:***

**Was the mine reported to be previously reclaimed, or did the mine appear to be reclaimed?**

Yes

## **Part VI      Photos**



**Photo 1:** Mine Site #83



**Photo 2:** Mine Site #83; View from site





**Photo 3:** Mine Site #83; Bench below site



**Photo 4:** Mine Site #83; Top of site





**Photo 5:** Mine Site #83; Subsidence at possible borehole



**Photo 6:** Mine Site #83; Shelter

**Part VII      Contacts Reports and Information**

Name: Eugene Esplain

Title or official role (if any): Navajo EPA Superfund Program

Telephone number: (928) 871-7331

Address: PO Box 2946, Window Rock, AZ 86515

Information provided: Lead Regulatory Agency

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Name: \_\_\_\_\_

Title or official role (if any): \_\_\_\_\_

Telephone number: \_\_\_\_\_

Address: \_\_\_\_\_

Information provided: \_\_\_\_\_

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Name: \_\_\_\_\_

Title or official role (if any): \_\_\_\_\_

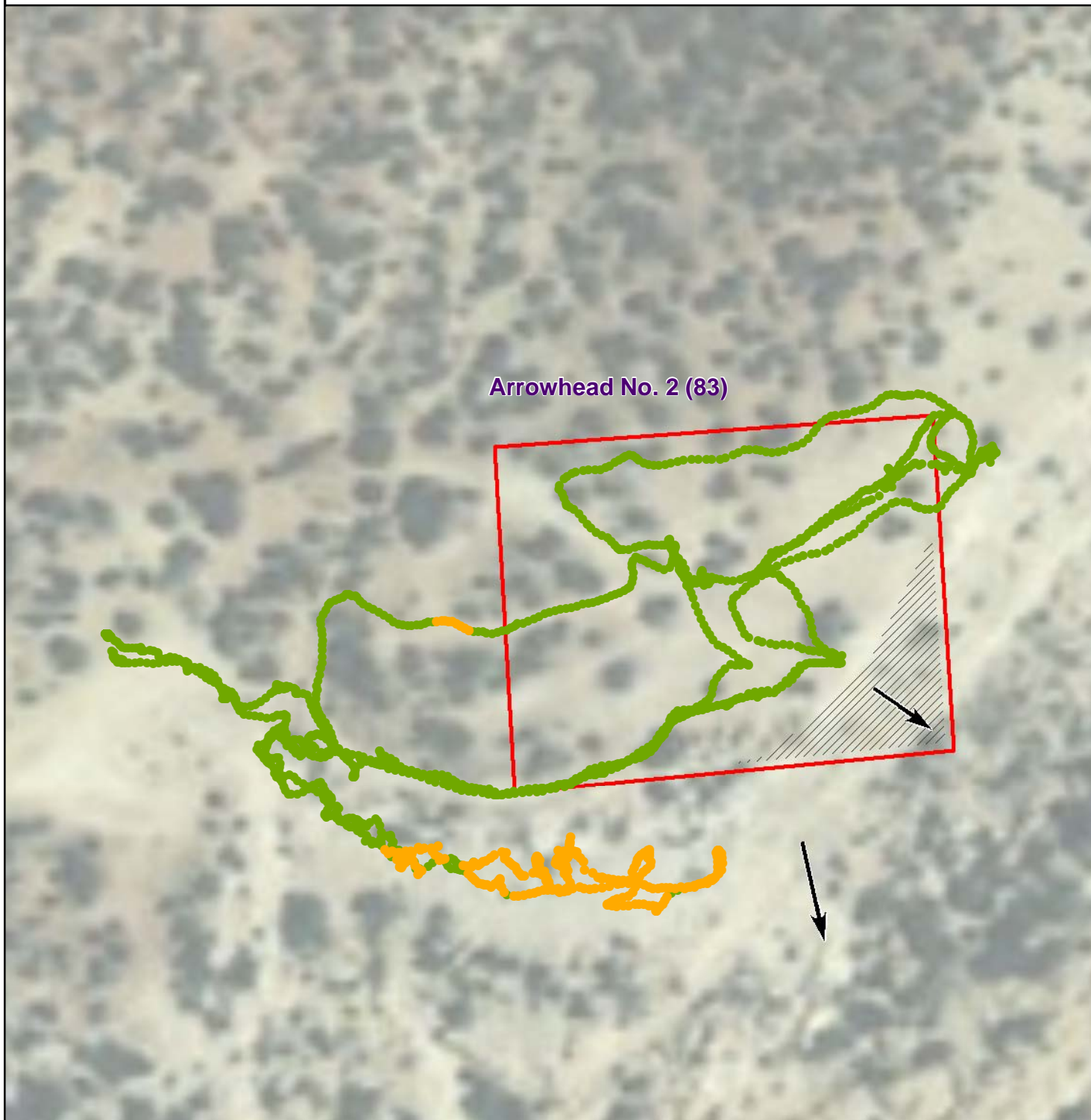
Telephone number: \_\_\_\_\_

Address: \_\_\_\_\_

Information provided: \_\_\_\_\_

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**Figure 1 - Gamma Radiation Measurements, Above Two Times Background  
Arrowhead No. 2 (83)  
Tselani Chapter, Navajo Nation**



## Legend

### Gamma Radiation Measurements

- < 2X Background
- > 2X Background

Measured as counts per minute (cpm)

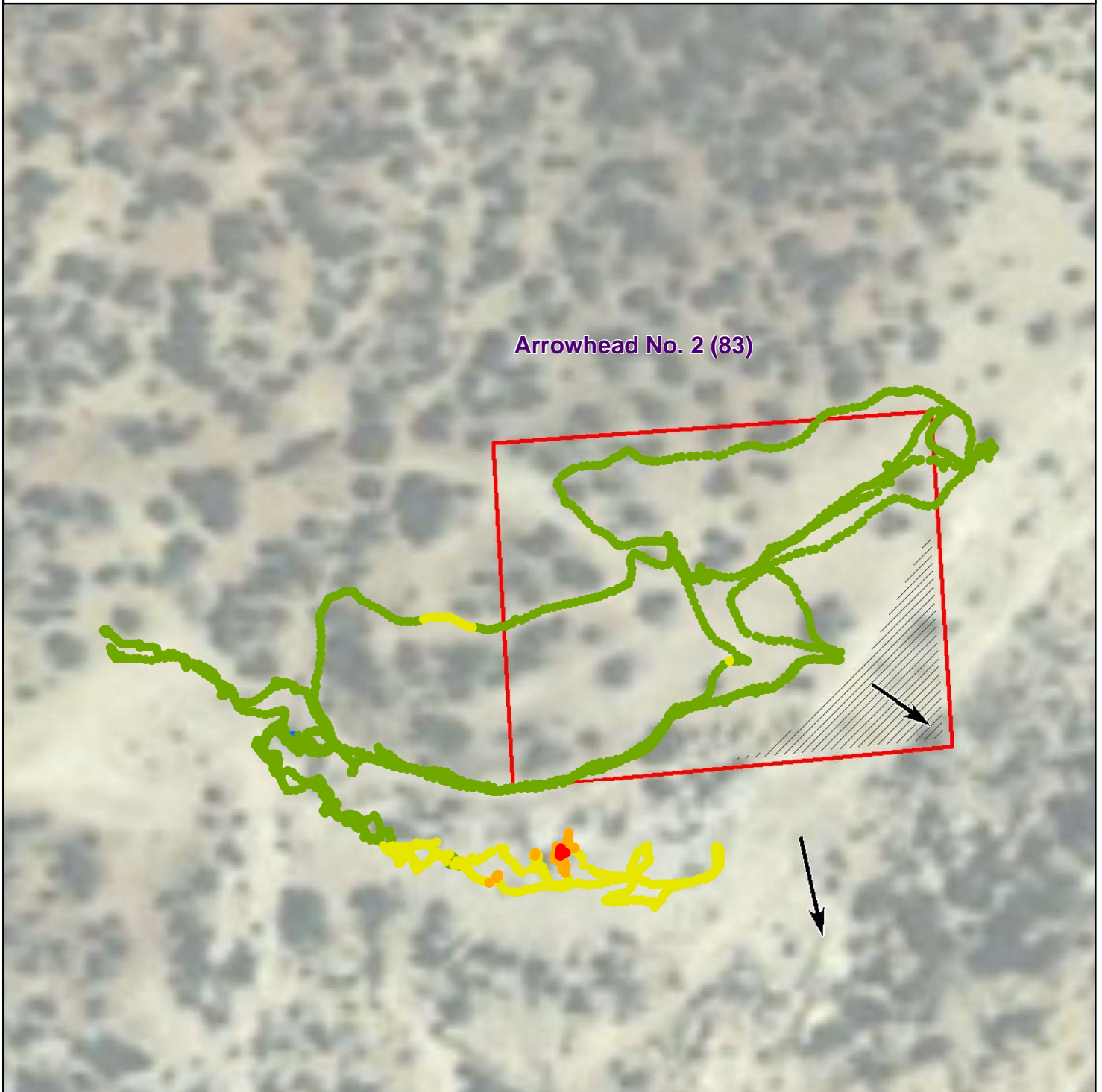
Average background 13,878 cpm

- Mine Site Boundary
- General Slope Direction
- Observed Reclamation Feature
- Observed Waste Pile
- Observed Structure
- Steep Grade





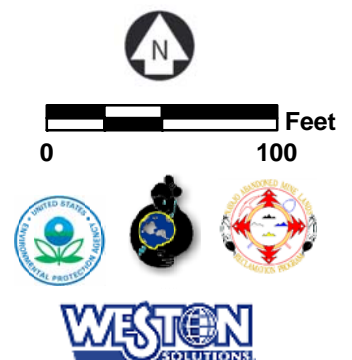
**Figure 2 - Gamma Radiation Measurements**  
**Arrowhead No. 2 (83)**  
**Tselani Chapter, Navajo Nation**



**Gamma Radiation Measurements**

- 0 - 10,000 cpm
- 10,000 - 25,000 cpm
- 25,000 - 50,000 cpm
- 50,000 - 100,000 cpm
- 100,000 - 250,000 cpm
- 250,000 - 500,000 cpm
- 500,000 - 1,000,000 cpm

- Mine Site Boundary
- General Slope Direction
- Observed Reclamation Feature
- Observed Waste Pile
- Observed Structure
- Steep Grade



Measured as counts per minute (cpm) Average background 13,878 cpm